

# Reflection Of Investor Sentiments On Stock Prices Of Acquirers In India

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**Abstract :** Acquisitions are in a rising trend in India and so is the research on M&A's (Mergers and Acquisitions). Researchers have tried to analyse M&A's from various aspects of acquirers, targets and due diligence agents to provide a clear picture of whether acquisitions are a profitable Indian scenario or vice versa. But one of the aspect that is yet to be explored by researchers is the research of M&A from the investors' perspective. Though there is a huge body of literature in the west and in India that analyses the returns of acquirers upon acquisition announcement, the investor sentiment that play a role in those returns are not really captured. This study analyses the sentiments of investors upon an acquisition announcement and the behaviour of investors and the role they play on the abnormal returns of acquirers. Using Event Study Analysis and R-Studio (Sentimental Analysis), this study captures the various type's sentiments of investors and their significance on acquirer returns, thus providing a gateway for future researchers.

**Index Terms:** Acquisition; Acquirers; Acquisition Announcement; Abnormal Returns; CAR; Sentimental Analysis; R-Studio; Event Study.

## 1. VALUATION OF ACQUIRERS – AN INTRODUCTION:

Valuation of acquirers is an important area for research as the share prices are considered to be the present value of future cash flows (Bruner, 2001). Many acquirers go in for an acquisition just to take advantage of the short-term Abnormal Returns (AR) generated at the time of announcement. The valuation of acquirers represent the AR that the acquirers' generate on the announcement of an acquisition (Thomas & Cardot, 2016). According to Holland & Hodkinson (1994), "Abnormal returns prior to a bid could result from a number of possible influences: prior disclosure of information concerning either the identity or the timing of the bid, the actions of the bidding company in purchasing shares in the target company, ie, 'stake building', or significant trading by others using unpublished price

sensitive information ie, insider-trading".

Though tremendous research has been undertaken in the developed economies (Yaghoubi et al, 2016). , there is still much required about the value creation of acquirers on an acquisition announcement. In India, research on acquisitions is yet to be explored although researchers have analysed the returns to acquirers. This study analyses the acquirer returns on an acquisition announcement. Once an acquirer announces an acquisition, it affects the sentiments of the market as to how the market perceives the synergy from the acquisition which then reflects in the stock market returns of acquirers. This study thus tries to analyse the immediate market sentiments on announcements and the various factors associating with it.

## 2. ACQUISITION ANNOUNCEMENT – SENTIMENTS CREATED IN THE MARKET: A LITERATURE REVIEW

Once the acquirers' announce their acquisition, sentiments are created in the market. These sentiments can be either positive or negative depending upon how the synergies from the acquisition are perceived by the market. This study analyses these market sentiments via social media sites instead of using traditional survey. Sentimental analysis from social media is a significant topic of research which has been proving useful in the prediction of various events including the stock market. In today's world, social media sites can be considered as huge body of information content which cannot be ignored. Thus usage of text mining data from social media to capture sentiments can be more accurate than traditional survey (Mao & Bollen, 2010). Studies have found the significance of social media in influencing the day to day life and have started to exploit the information content in social media. The recent improvement in this field is capturing the sentiments of investors through social media and predicting the stock market behaviour using the investor sentiments. Twitter is one of the social media which is highly accepted in the financial community. Messages from twitter, known as tweets can be easily accessed through application programming interface (API). Many sub forums in twitter

has been started recently like Stocktwits and Tweet trader which acts as a platform for discussion among the investors. Researchers have tried to capture the stock market behaviour using the investor sentiments derived from twitter using Google Profile of Mood States (GPOMS), Opinion Finder (OP) and so on (Bollen & Mao, 2009; Zhang, Fuehres & Gloor, 2011; Rao & Srinivasta, 2013).

Twitter was established in 2006 and since then the number of people and firms joining twitter have been increasing drastically. Every day around 65 million tweets are posted per day with 750 tweets each second (as in Zhang, Fuehres & Gloor, 2011). Studies in the west have started to exploit the information from twitter and in India it is an area to probe in. Indian population is the second in the world in the usage of internet and thus the importance of market sentiments from social media can be of great significance to research. Text mining data predicts and influences the stock market in an effective way. The various sentiments from social media like happy, sad, fear, anger and bullishness were extracted and their influence on the stock markets were tested. Negative emotions were found to have more significant impact on stock market returns when compared to the positive emotions (Antweiler & Frank, 2004). Time-

lagged models were created to find the effect on previous day's texts or previous week's sentiments on today's stock returns. The role of sentiments on event studies is also examined in the literature. Various events like economic events, political events and corporate events have been predicted using the sentiments from social media sites (Jucunda & Sophia, 2014). But financial events like acquisition needs a pathway to proceed. This study seeks to exploit the use of sentiments from social media sites in

### 3. MARKET REACTION TO ACQUISITION ANNOUNCEMENT – CUMULATIVE

The market sentiments for an acquisition announcement can be reflected in the acquirers' CAR. This market reaction to acquirers on an acquisition announcement has been a significant topic of research. Studies have analysed the AR and the CAR around the announcement of an acquisition for both the acquiring firms and the target firms. The AR and CAR of firms indicate the value creation or destruction of acquirers and targets. The studies in the developed economies conclude that acquisitions in general create value for target firms and destroy value for acquirer firm shareholders (Wansley & Lane, 1983; Walter, 1994; Padmavathy & Ashok, 2012). Few researches showed that acquisition does not create value to both acquirers and targets (Palepu, 1986; Barnes, 2000; Powell, 2001 & 2004). While there is still no conclusive evidence about the value creation of acquirers, studies in India have shown that acquisitions are beneficial to acquiring firm shareholders (Rani, Jain & Yadav, 2014; Jucunda & Sophia, 2014). This is promising to Indian acquirers and necessitated the need for

### 4. OBJECTIVES OF THE STUDY:

- To analyse the cumulative abnormal returns of acquirers around the acquisition announcement.
- To analyse acquirers' return on an acquisition

### 5. HYPOTHESIS DEVELOPED:

Studies in the west have shown that acquisitions do not create significant value for the acquiring firm shareholders. Almost all the studies have concluded that acquisitions are value creative for targets and are value destructive for acquirers. Kale, 2004 analysed the Indian acquisitions for a period of 1992 -2000 testing for the differences in the value creation patterns in developed and developing markets. He points out that some of the factors which led to negative value creation of acquirers in the developed markets may be less relevant in India (emerging market). According to Kale, 2004, the value destructing factors for acquirers in the developed economies such as market for control, presence of multiple bidders and the post-integration challenges does not exist in India as it is a growing economy and acquisitions are still in its infancy stage. The results of his study found that both acquirers and targets in India were found to have positive abnormal returns. Chakarbarti, 2008 also studied acquisitions in India measuring the effects of acquirer stock returns in India. The results showed that acquisitions increase value for the acquiring firm shareholders in the short-term but were value destructive in the long-term horizon. Therefore motivated by the results of

acquisition event studies. The literature on sentimental analysis shows the significance of the text mining sentiments on the stock market prediction. This study brings in the concept of text mining sentiments into the acquisition literature and analyses the influence of the text mining sentiments on the short-term CAR around the acquisition announcement which is a unique contribution to the literature.

### ABNORMAL RETURNS: A LITERATURE REVIEW:

more research in this area.

The extent literature shows an abnormal returns ranging from 0.1% to 121% in developed economies on an acquisition announcement (Firth, 1980; Schipper & Thompson, 1983; Mulherin & Reeves, 2000). Researchers have deployed various methods to analyse the AR of acquirers like analysing the short-term and long-term acquirer returns, pair-matching the acquirers with non-acquirers to show the abnormal returns generated and comparing the acquirers and their rivals and so on. These researchers believed that an abnormal returns on an acquisition announcement depends on the way the market perceives the acquisitions and the synergies through acquisitions (Krishna, Krishna & Lefanowicz, 2009). These synergies perceived by the market is dependent on various factors like the characteristics of the deal and the past financial performance of acquirers.

announcement from investors' perspective rather than from an acquirers' perspective.

- To analyse the influence of market sentiments from text mining data on acquirers' cumulative abnormal returns.

Kale (2004) and Chakarbarti (2008) this study hypothesizes that:

H1: An acquisition announcement is either value creative for the acquiring firm shareholders or has a neutral effect on the acquiring firm shareholders but does not create a negative value for acquirers.

The role of sentimental parameters in predicting stock market is a trending study which has shown a lot of significance (Rao & Srinivasta, 2013). Studies have shown that sentiments from social media websites predict stock market better than survey methodology (Mao & Bollen, 2011). Also studies show that the positive emotions influence the stock market in a positive way and the negative influence influences the stock market in a negative way. Few studies have also analyzed the influence of sentimental analysis on event studies (Jucunda & Sophia, 2014). On an acquisition announcement, the significant emotions created in the market is the one that is reflected in the market. Therefore the role of market sentiment cannot be undermined in acquisition literature and thus it is hypothesized that:

H2: The behavioural factors influences may the cumulative abnormal returns of acquirers' around acquisition announcement and the direction of influence is in accordance with the direction of the emotion.

H3: The positive emotions may influence CAR in a positive way.

H4: The negative emotions may influence CAR in a negative way

## 6. RESEARCH METHODOLOGY

### Market Data – Event Study Model

The market data in this study is used in the calculation of cumulative abnormal returns of acquirers around the acquisition announcement. The market data is collected from the Bombay Stock Exchange website and is computed as shown below. This study uses a short-term event window of the estimation period -7 to +7 days around the announcement period. The CAR (Cumulative Abnormal Returns) is observed for (-1, +1), (-3, +3), (-5, +5) and (-7,+7) days around the announcement. Brown and Warner (1985) presented various measures in an event study methodology to test for excess returns. They were: Mean Adjusted returns, Market adjusted returns and Ordinary Least Square market model. This study adopts the Market model for calculating the abnormal returns from Chatterji & Kuenzi (2001) for its popularity in the literature.

### The market model of Chatterji & Kuenzi ,2001:

The market model assumes that the stock returns are determined by the following

Ordinary Least Square equation:

$$NR_{jt} = \alpha_j + \beta_j R_{mt} + \epsilon_{jt}$$

$NR_{jt}$  = normal rate of return for company j on day t;

$R_{mt}$  = rate of return for market index m on day t;

$\epsilon_{jt}$  = error term for company j at time t.

The coefficients  $\alpha_j$  and  $\beta_j$  are the ordinary least squares parameters of the intercept and slope, respectively, for company j. The abnormal return  $AR_{jt}$  for the company j will then be calculated as:

$$AR_{jt} = R_{jt} - (\alpha_j + \beta_j R_{mt})$$

$AR_{jt}$  = Abnormal return for company j on day t.

$R_{jt}$  = Return for company j on day t

$\alpha_j$  = Estimate of OLS parameter of intercept

$\beta_j$  = Estimate of OLS parameter of slope

$R_{mt}$  = Rate of return of market index m on day t.

### Multiple Linear Regressions (OLS)

After cautious consideration of the nature of the problem and purpose of the study, a Linear Regression Analysis chosen as the appropriate statistical technical for measurement. Regression analysis is a conceptually simple

The Cumulative Abnormal Returns are calculated using:

$$CAR(t, T) = \sum_{t=T}^T AR_t$$

$AR_t$  = average abnormal return on day t;  
t, T = Accumulation period

Examining the CAR of a set of sample securities will be used to look at whether or not the values of the average residuals, starting from the day of cumulation and up to a specific point, are systematically different from zero (Chatterji & Kuenzi (2001)).

### Data Mining – R-Studio

Collection of text mining data extraction for each company for 10 days before and after the acquisition announcement. Text mining data around the acquisition announcement for each acquirer was collected manually for around ten days around the acquisition announcement. Importing the tweets into R-Studio and computing the emotion and polarity of tweets for each company. R-Studio is DATA MINING software which analyses the tweets and computes their emotion and polarity using various codes. It is a coded software. The sentiments collected for each company were imported into R-studio which upon the execution of codes gave the polarity (positive and negative) and emotion (sad, fear, anger, disgust, surprise and anger) for the tweets of each company. Each company's polarity and emotion were thus classified separately using R-studio. Next step is to compute the variables in a quantitative manner for analysis. From the literature of twitter and stock markets, Zhang et al (2011) calculates the percentage of emotion in each tweets. Following Zhang we compute the percentage of emotions as: Positive (%) = Number of positive tweets / Total number of tweets  
Negative (%) = Number of negative tweets / Total number of tweets  
Joy (%) = Number of joy tweets / Total number of tweets  
Surprise (%) = Number of surprise tweets / Total number of tweets  
Sad (%) = Number of sad tweets / Total number of tweets  
Anger (%) = Number of anger tweets / Total number of tweets  
Fear (%) = Number of fear tweets / Total number of tweets  
Disgust (%) = Number of disgust tweets / Total number of tweets

method for investigating functional relationships among variables. The relationship is expressed in the form of an equation or a model connecting the response or dependent variable and one or more independent variables. Multiple

Regressions is a statistical technique used to predict an observation depending upon the observations of Individual Characteristics. Multiple Linear Regressions is to identify that among the decided variables which variables contribute the most to identify the decision of acquirers. The literature shows a huge amount of studies using multiple regression analysis to identify the factors influencing the short-term cumulative abnormal returns (Fuller, Netter & Stegemoller, 2001 & Rani, Jain & Yadav, 2014).

influence the acquirer operating performance exists.

The regression function of the form:

$$Z = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 \dots + \beta_NX_N + \epsilon$$

Transforms the individual variable value which is then used to predict the acquirer decision.

#### Variables selected in the Study

Where  $\beta_0, \beta_1, \beta_2, \dots, \beta_N$  = are constants called the model regression co-efficient or

parameters, which means the regression scores identified statistically for the variables that have a significant level as .000.

$X_1 + X_2 + X_3 + \dots + X_N$  = are the predictor variables in this study.

Z = will be the regression scores for the post-acquisition operating performance of acquirers using the pre-acquisition factors.

Y = will be the response variable or dependent variable that substitutes for the short-term CAR of acquirers. It is a quantitative data.

= randomized disturbance or error.

**Table 1: Variables in this study**

Variables selected	Explanation
	Dependent Variable
CAR	Cumulative abnormal returns for various windows (-1,+1), (-3,+3), (-5,+5) and (-7,+7).
	Independent Variables
Bullishness	This represents the bullishness of the market at the time of the acquisition announcement.
Agreement	The agreement is the proportion of positive and negative feelings in the market at the time of acquisition announcement
Positive	This represents the percentage of positive feeling in the market due to acquisition announcement.
Negative	This represents the percentage of negative feeling in the market due to acquisition announcement.
Emotions (Joy, Sad, Surprise, Fear, Anger, Disgust)	These variables represent the various emotions of tweets around the acquisition announcement.

**Source: Compiled by the Author**

#### Sample Selection

Centre for Monitoring Indian Economy Pvt Ltd (CMIE) database prowess has the data for 21, 575 companies of which 1183 companies are BSE listed acquirers and 4202 are BSE listed targets. Based on the parameter for selection, the study considers acquirers who have acquired targets during 2014 – 2016 for a period of two years to the manufacturing sector. Thus the total number of acquirers

from 2014 – 2016 is 845 companies. Filtering for BSE listed companies we get 569 acquirers. Considering the manufacturing sector the number of acquirers and targets reduces to 257 acquirers. Acquirers which only announce the deal but fail to consummate the deal were eliminated thus reducing the number of acquirers to 250. Another criterion was that acquirers should not have been targets

for another company in the same year which reduced the number of acquirers from 200 to 150 as most of the acquirers have been both acquirers and targets in the same year. Then considering for the companies with available financial, the total number of companies in the sample

reduced to 130. Thus the final sample consists of 130 acquirers. The emotions of the stock market shared by investors in the social media were also one of the considerations for filtration of acquirers.

### Selection of Manufacturing Firms

The reason for selecting manufacturing firms for the study is that manufacturing sector is considered to be one of the biggest industry sector as well as a fast developing sector. Manufacturing sector also contributes more towards production, labour, revenue and other major factors for the development of the economy. There are large number of small and medium sized firms in this sector and as well as

there are also number of acquirers and targets in this sector. These are the major issues considered for undertaking manufacturing sector for the study. From figure 3.4, it can be seen that 50% of the acquisitions are done only through manufacturing sector during 2014 – 2016.

## 7. ANALYSIS AND INTERPRETATION

### Hypothesis Testing

Hypothesis 1: An acquisition announcement is either value creative for the acquiring firm shareholders or has a neutral effect on the acquiring firm shareholders but is not value destructive for acquirers. The market reaction of the acquirers is calculated by means of abnormal returns and cumulative abnormal returns. This study uses Market model of Event Study (Brown & Warner, 1985; Chatterji & Kuenzi, 2001) methodology to calculate the market returns. All around the world acquirers have usually generated a negative abnormal returns or a neutral return. This study analyses the abnormal returns and cumulative abnormal returns for Indian acquirers around the acquisition announcement. The following Table 2 summarizes the abnormal returns for seven days around the acquisition announcement. The results show that abnormal returns around the acquisition announcement are mostly negative and neutral around the acquisition announcement. The mean abnormal returns, the median abnormal returns and the t-test significance are shown in the Table 2 below. The mean abnormal returns show a positive return for acquirers around -1 to +1 days around the acquisition announcement. The significance of the results are weak and over 10 % to 20%. The reasons for the weak significance may be that AR

and CAR both reflect on the fifth day of any corporate event than the other days (Jucunda & Sophia, 2014). The results supports this findings as AR is significant at 10% for five days surrounding the acquisition announcement. The abnormal returns for fifteen days around the acquisition announcement shows great fluctuation varying from positive to negative. The three days around the acquisition announcement seems to be positive and significant. The day before the acquisition announcement shows 1.3% positive abnormal returns which is significant over 10%. Thus it can be implied that acquisitions are not value destructive to acquiring firms in India unlike the developed markets. This is a significant finding in acquisition literature as acquisitions have found to create value on acquirers' on an acquisition announcement. Findings from the studies have concluded that acquirers on average gain CAR indistinguishable from zero on an acquisition announcement whereas this study shows returns of 1.3% on the three days surrounding the acquisition announcement. This may be because acquisitions are in a rising trend in India and Indian acquisitions are perceived as positive signals in Indian market.

**Table 2: Abnormal Returns for fifteen days around the acquisition announcement**

Day	Mean Abnormal Returns (%)	Median Abnormal Returns (%)	t-test
-7	-0.21	-0.2606	-0.735
-6	-0.2266	-0.1842	-0.878
-5	-0.2398	-0.4015	-0.975
-4	0.0202	-0.1648	0.07
-3	-0.0507	-0.2464	-1.599*
-2	-0.2348	-0.1186	-1.037



-1	1.308	0.3346	1.301**
0	0.269	0.2408	0.878
1	0.0644	-0.2048	0.158
2	-0.0602	-0.5443	-0.172
3	0.2029	-0.0699	0.512
4	-0.1325	-0.005	-0.402
5	-0.0576	0.2045	1.633*
6	-0.433	-0.197	-1.267**
7	-0.3372	-0.4436	-1.177**

10% significance

\*\*20% significance

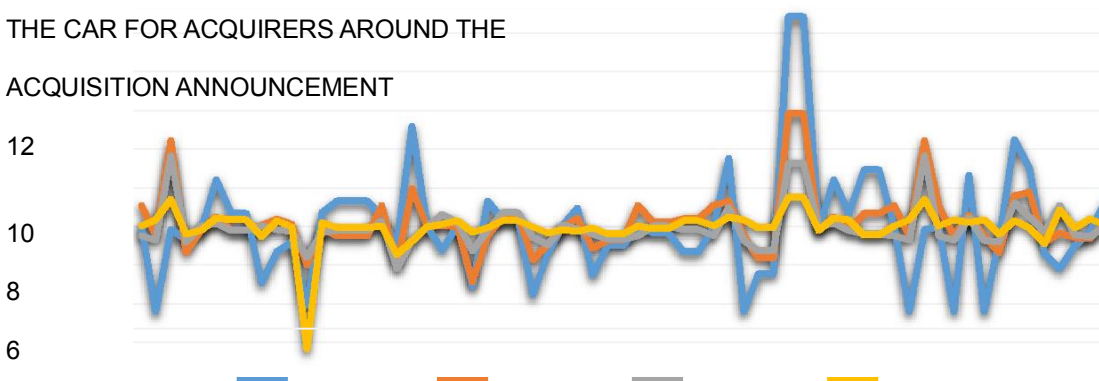
Source: Compiled by the Author

One possible reason for the positive returns may be because acquisitions are in an increasing trend in Indian context and that the number of acquisitions are lesser in India when compared to western countries. Also one another reason is that Indian acquisition are mostly related or horizontal acquisitions in the same business line which are perceived as a positive expansion in business rather than diversification. Cumulative Abnormal returns for all acquirers in the sample were analysed for various windows. The results were promising as CAR, unlike abnormal returns were positive around the acquisition announcement.

The Figure 4.1 below summarizes the results for CAR (-1,+1), CAR (-3,+3), CAR(-5,+5) and CAR(-7,+7) around the acquisition announcement. The cumulative abnormal returns for three, six, eleven and fifteen days were calculated around the acquisition announcement. The windows (-1, +1), (-3,+3) and (-7,+7) shows positive CAR around the acquisition announcement. The window (-5,+5) exhibits a slight minor negative CAR. Though the percentage of positive returns is not that high, still it is not value destructive to acquiring firm shareholders.

**Figure 1: CAR of acquirers around acquisition announcement**

THE CAR FOR ACQUIRERS AROUND THE ACQUISITION ANNOUNCEMENT



The Figure 1 shows the behaviour of acquirers around the acquisition announcement for three (-1,+1), six (-3,+3), eleven (-5,+5) and fifteen (-7,+7) days respectively. Literature also suggests that any corporate decision is best reflected on the fifth day of its announcement. Jucunda & Sophia (2014) a corporate event study and found that any

corporate decision is best reflected on the fifth day. The study was based on the event of the change of the CEO of Microsoft. Thus we adopt CAR (-5, +5) as the dependent variable for the analysis. Table 3 summarizes the CAR of acquirers around the acquisition announcement.

**Table 3: CAR around the acquisition announcement**

CAR	Mean (%)	T-test	Significance
(-1,+1)	0.0486	0.136	0.893
(-3,+3)	0.2442	1.633	0.110**
(-5,+5)	-0.0164	-1.732	0.086*
(-7,+7)	0.0120	0.103	0.918

\*Significant at 10%

\*\*Significant at 15%

Source: Compiled by the Author

The cumulative abnormal returns for three, six, eleven and fifteen days were calculated around the acquisition announcement. The windows (-1,+1), (-3,+3) and (-7,+7) shows positive CAR around the acquisition announcement. The window (-5,+5) exhibits a slight minor negative CAR. Though the percentage of positive returns is not that high,

still it is not value destructive to acquiring firm shareholders. The three day window around the acquisition announcement shows a CAR of 0.2% which is positively significant. Thus the hypothesis H1 is supported by the study. This shows that unlike developed economies, acquisition in India are value creating to acquirer firms.

**Figure 2.: CAR for eleven days around acquisition announcement**



Source: Compiled by the Author

The Figure 2 above depicts the behaviour of acquirers for eleven days around the acquisition announcement. As it can be observed, acquirers show a positive trend on announcement CAR. Acquirers show CAR from 0% to 1.7%

which is positively significant. 98% of acquirers in the sample have significant positive CAR for eleven days around acquisition announcement.

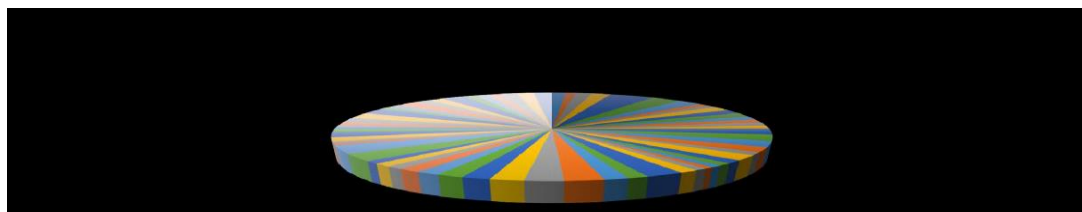
**Behavioral Factors on an Acquisition Announcement**

The parameters of the deal are widely significant to an acquisition announcement to the extent that they determine the CAR of acquirers around announcement. Stock market prediction using text mining data is a trending field of study now. Investors and stock holders texts is found to have a great impact on the stock markets. This has been used in this study to test the impact of text mining data around an acquisition announcement on the abnormal returns of acquirers around the announcement. Tweets for each acquirer in the sample were collected for ten days before and after the acquisition announcement. Text mining data

were collected for each acquirer around the time of acquisition announcement. A total of 7000 tweets were collected for all acquirers in the sample and was subjected to sentimental analysis in R-Studio to identify the emotion and polarity of the tweets for each acquirer.

The Figure 3 below indicates the percentage of text mining data collected for each acquirer company. Popular acquirers had more number of tweets and less popular firms had a comparatively less number of tweets.

**Figure 3 : Percentage of text mining data collected from each acquirer**

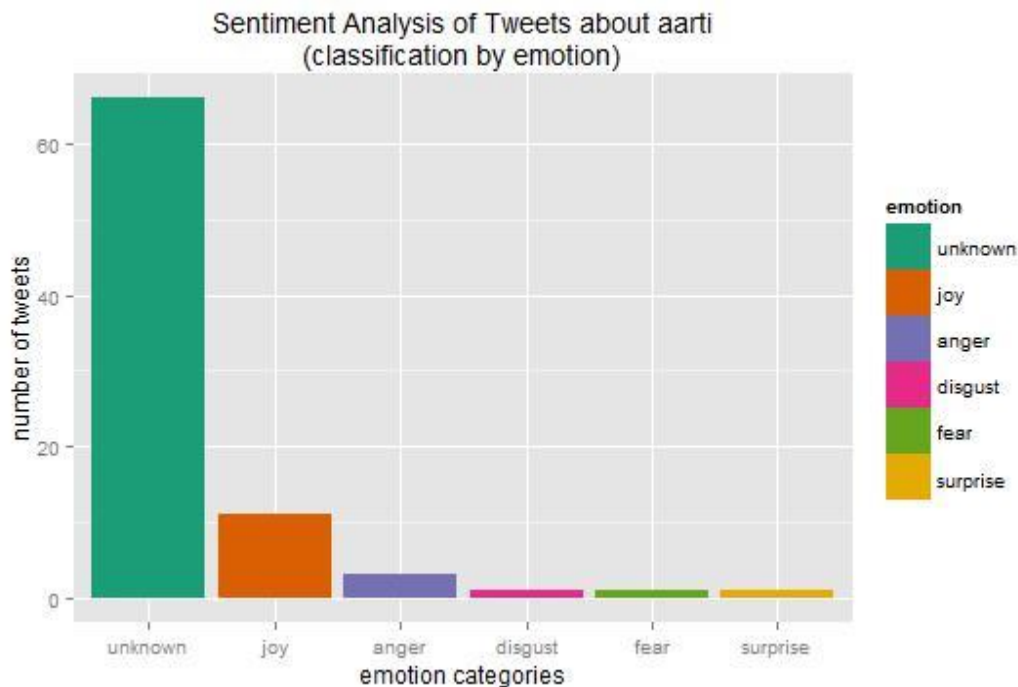


Source: Compiled by the Author

The text mining data collected for each acquirer were then subjected to sentimental analysis in R-Studio. The usefulness of text mining data in predicting stock markets is becoming a significant field and this study tests the usefulness of twitter data in influencing the stock market reaction of acquirers around the acquisition announcement. The data mining literature provides the variables of emotion and polarity of the text mining data which is used in predicting the stock market reaction. The collection of text mining data and the computation of variables follow the following steps: Collection of text mining data for each company for 10 days before and after the acquisition

announcement were done through R-studio. R-Studio is statistical software which analyses the text data and computes their emotion and polarity using various codes. The software is primarily used in the computer science field and thus runs with codes. The tweets collected for each company were imported into R-studio which upon the execution of codes gave the polarity (positive and negative) and emotion (sad, fear, anger, disgust, surprise and anger) for the tweets of each company. Each company's polarity and emotion were thus classified separately using R-studio. The results of emotion and polarity are generated from R-Studio for each acquirer as given below:

**Figure 4:** Emotions of the text data as classified by R-Studio



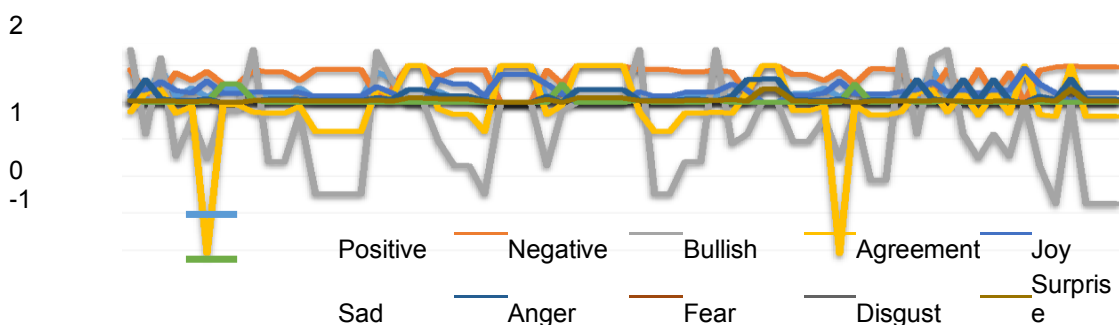


Source: R-Studio Analyses by Author

The emotions and polarity extracted from R-Studio is then converted into metric form using the methodology in Zhang, Gloor & Fuehres (2011). The emotion and polarity were classified separately for all the 130 acquirers. Using the results from R-Studio, the percentage of text mining parameters were calculated as shown below: From the literature of sentimental analysis using text mining data and stock markets, Zhang et al (2011) calculates the percentage of emotion in each tweets. The text mining data collected showed the amount of information that is spread across the investors and stockholders on an acquisition. The text mining data exhibited several factors that were repeatedly discussed.

The Positive (%) represents the percentage of positive data that were tweeted around the acquisition announcement. Negative (%) represents the percentage of negative feeling in the market due to acquisition announcement. Emotions (Joy, Sad, Surprise, Fear, Anger, and Disgust) are variables that represent the various emotions of data around the acquisition announcement. The bullishness of the data represents the bullishness of the market at the time of the acquisition announcement. Agreement is the proportion of positive and negative feelings in the market at the time of the acquisition announcement.

**Figure 6: Sentiments of the market at the time of acquisition announcement**



Source: R-Studio Analyses – Compiled by Author

Figure 8 above shows the various sentiments of the market at the time of the acquisition announcement. Of all the sentiments, 'negative' and 'anger' are found to be quite stable and has high values than the other sentiments. The variable 'positive' is also found to be stable but slightly lower when compared to 'negative' and 'anger'. The 'bullishness' of the market is found to have low negative values and high positive values. This oscillation shows the instability of market and the way the investors and shareholders perceive each acquisition. As it can be seen, the market is quite positive about the announcement of acquisition and thus creates positive emotions ranging from 0% to 1.1%. This shows how positive the market has perceived the acquisitions to be. It can also be seen that the market wasn't very sad and 'sad' remained at zero for most of cases. Thus it can be said that the market wasn't sad but happy with acquisitions in India. Around the acquisition announcement which shows a higher percentage of joy from -0.2% to 0.99%. The positive values of 'joy' confirm again that the market is happy on an acquisition announcement. As can be seen, anger raises from 0% to 0.7% around the acquisition announcement. Though most of the acquirers show low anger level, few acquirers exhibit anger to the extent of 0.7%. 'Fear' of the market at the time of acquisition announcement is exhibited in Figure 8. Figure 8 shows a low level of fear with most of the acquirers ranging from 0% to 0.1%. Thus it can be again implied that the market was quite positive to acquisition announcement. The emotion 'disgust' ranges from 0% to 0.37% with most of the acquirers showing

disgust around 0.05%. Once again, the value of this negative emotion digest is quite low. 'Surprise' of the market around the acquisition a announcement ranges from 0% to 0.37% and 'bullishness' of the market ranging from -2.5% to 1.5% which is quite an unstable emotion. Emotion Agreement shows that market is positively agreeable is most of the cases with values oscillating between 0% to 1%. Except for a few cases, almost all the acquirers exhibit positive emotions which show how positive the market agrees with the acquisition announcement. This study analyses the impact of acquisition announcement on the market behaviour using the text mining data from the social media sites. The emotions of the market at the time of announcement are regressed upon CAR to find the significance of market emotions on the short-term CAR of acquirers.

#### Hypothesis testing:

H2: The behavioural factors influences the cumulative abnormal returns of acquirers' around acquisition announcement and the direction of influence is in accordance with the direction of the emotion.

H3: The positive emotions may influence CAR in a positive way.

H4: The negative emotions may influence CAR in a negative way.

Table 4 shows the results of multiple linear regression analysis with behavioural parameters as independent

variables and CAR as dependent variable.

**Table 4:** Influence of behavioural parameters on CAR

Predictor	Beta	T-test	Significance
Constant	-1.255	0.867	0.427
Positive	1.388	.836	.100
Bullish	.013	.145	.927
Agreement	.123	.127	.337
Joy	-1.394	.953	.146
Sad	-2.299	1.052	.031*
Anger	-1.508	1.364	.271
Surprise	3.657	2.097	.084

R Square = 0.581, Dependent variable: CAR, Constant = -1.255 (0.427)

\*Significant at 0.05%

Source: Compiled by the Author

The R-Square value of the analysis is 0.581 which signifies that there is 58.1% of bonding between the behavioural parameters and CAR. The standard error of the estimates is also reduced to 0.46431. This implies that there is not much of deviation among the co-efficient across the independent parameters. The sentimental parameters 'sad' has shown strong significant influence on CAR. The variable 'sad' is also highly significant at 0.031% with a negative co-efficient of -2.299. This is in accordance with the literature which states that negative emotions are reflected in the market in a better way (Bollen & Mao, 2010). This implies that the sadder the market is about an acquisition the more chance of that acquisition being value destructive for the acquirer. One another emotion that is reflected in the market is surprise significant at 0.084% with a beta co-efficient of 3.657. This supports our hypothesis

## DISCUSSIONS

The market reaction of acquirers was observed by AR and CAR. The AR and CAR were computed using event study methodology, market model. AR was observed for fifteen days around the acquisition announcement and the results showed that acquisition announcements are positive to acquirers in Indian economy. The three days around the acquisition announcement seems to be positive and significant. The day before the acquisition announcement shows 1.3% positive abnormal returns. Thus it can be implied that acquisitions are not value destructive to acquiring firms in India unlike the developed markets. This is a additional finding in acquisition literature as acquirers have always been considered to be value destructive on an acquisition announcement. Researchers have concluded that acquirers on average gain CAR indistinguishable from zero on an acquisition announcement whereas this study shows returns of 1.3% on the three days surrounding the acquisition announcement. One possible reason for the positive returns may be because acquisitions are in an

H2 which states that: 'The behavioural factors may influence the cumulative abnormal returns of acquirers' around acquisition announcement and the direction of influence is in accordance with the direction of the emotion'. Also the hypothesis H3 is supported while H4 is not supported by the study as the positive emotions are lesser significant than negative emotions. Acquisition announcement has a direct impact on the market behaviour through CAR. To identify whether the market return changes have an impact on investment decision. Sentimental analysis reflects any movement in the market. Its impact can be seen through the emotions justified by the investors through data mining technique which is also supported by Zhang, Fuehres & Gloor (2011) in which the percentage change in the markets reflects on the emotions.

increasing trend in Indian context and that the number of acquisitions are lesser in number to that of the western economies. Also one another reason is that Indian acquisition are mostly related or horizontal acquisitions in the same business line which are perceived as a positive expansion in business rather than diversification. Thus it can be seen that acquisitions are value creative for Indian acquirers, but are value creative unlike the developed markets such as UK and US. Therefore as Harries et al (2000) suggests, western theories and models can be tested before being implied. The CAR of acquirers were computed for fifteen days around the acquisition announcement and were observed for four windows, three, seven, eleven and fifteen days around the acquisition announcement, ie, (-1,+1), (-3,+3), (-5,+5) and (-7,+7) respectively. While windows (-1,+1) and (-3,+3) showed high fluctuations in values, the windows (-5,+5) and (-7,+7) exhibited stable over the acquisition announcement. Thus it can be concluded that the acquisition announcement best

reflects on the fifth day and seventh day around the announcement. Also as from the previous literatures, it can be seen that any corporate investment best reflects on the fifth day of the announcement (Jucunda & Sophia, 2014) and thus CAR (-5,+5) was chosen as the appropriate dependent variable for the study. From the analyses it was seen that on (-5,+5), acquirers shows significant positive CAR ranging up to 1.8%. Thus this again proves that Indian acquisitions are value creative to acquirers in India. The emotions computed showed that market was quite positive to acquirers on an acquisition announcement with positive and agreement showing high positive values. The computed emotions and polarity were subjected to Multiple Linear Regression analysis on CAR to examine their influence on the short-term cumulative abnormal returns of the acquirers. The results of the regression showed that

#### **Implications:**

This study provides many new findings in the acquisition literature. First of all, this study shows that acquisition announcements are value creating to acquiring firm shareholders. The findings in the literature (Holland & Hodkinson 1991) have shown that acquisition announcements are generally value destructive to acquiring firms, while the finding of this study leaves in a new perspective. Also this study brings out various pre-acquisition factors that influence both CAR and the post-

#### **LIMITATIONS AND SCOPE FOR FUTURE**

This research leaves so much of scope for the future researchers. The use of financial and text mining parameters in influencing the acquirer abnormal returns is a significant contribution by this study. This research leaves in scope for future researchers to analyse further the use of data mining information or social networks in general in predicting the stock market reaction of acquirers and targets. This study is that it takes into account only the tweets of ten days before and after the acquisition announcement. This period can be extended and tested as information asymmetry in markets may have spread even two months before the announcement. This may start affecting the stock market returns of acquirers even before two months of the acquisition announcement. Future researchers can further probe into the characteristics that affects the sentiments of investors in India whether Indian investors are really for acquisitions.

only the emotion 'sad' was significant and influenced the market returns in a negative way. This is in accordance with the literature (Mao & Bollen, 2010) which states that negative emotions are reflected in the market in a better way. This implies that the sadder the market is about an acquisition the more chance of that acquisition being value destructive for the acquirer. Acquisition announcement has a direct impact on the market behaviour through CAR. To identify whether the market return changes have an impact on investment decision, sentimental analysis reflects any movement in the market. Its impact can be seen through the emotions justified by the investors through data mining technique which is also supported by Zhang & Gloor (2011) in which the percentage change in the markets reflects on the emotions.

acquisition operational performance of acquirers. The importance of the financial and Text mining data information in influencing acquirers' abnormal returns have been proved. This study has introduced a new concept into the acquisition literature, the text mining parameters. Though sentimental analysis from data mining is a trending topic which is used by researchers to predict stock markets, the use of text mining parameters are yet to be examined.

#### **RESEARCHERS**

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